LOSSLESS VIDEO DATA COMPRESSOR
WITH VERY HIGH DATA RATE

ABSTRACT

5   Lossless video data compression is performed in real time at the data rate of incoming real time video data in a process employing a minimum number of computational steps for each video pixel. A first step is to convert each pixel 8-bit byte to a difference byte representing the difference

10   between the pixel and its immediate predecessor in a serialized stream of the pixel bytes. Thus, each 8-bit pixel byte is subtracted from its predecessor. This step reduces the dynamic range of the data. A next step is to discard any carry bits generated in the subtraction process

15   of two's complement arithmetic. This reduces the data by a factor of two. Finally, the 8-bit difference pixel bytes thus produced are subject to a maximum entropy encoding process. Such a maximum entropy encoding process may be referred to as a minimum length encoding process. One

20   example is Huffman encoding. In such an encoding process, a code table for the entire video frame is constructed, in which a set of minimum length symbols are correlated to the set of difference pixel bytes comprising the video frame, the more frequently occurring bytes being assigned to the

25   shorter minimum length symbols. This code table is then employed to convert the all of the difference pixel bytes of the entire video frame to minimum length symbols.

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